



Testimony of Donald Welch, Ph.D.
On Behalf of
Merit Network, Inc.
Before the Senate Committee on Energy
and Technology
Regarding Review of the Michigan
Telecommunications Act



April 12, 2011

Members of the Committee:

Good Afternoon. My name is Don Welch, I am President and CEO of Merit Network. I would like to thank Chairman, Nofs, Vice Chair Proos, and members of the Committee for the opportunity to speak today. I am very proud to testify on behalf of Merit Network, our Member Community in Michigan, and the REACH-3MC broadband build-out project, a project that will have profound and long-lasting benefit for Michigan and of which Merit is the lead organization.

The reason I come before you is to introduce Merit and our REACH-3MC project, present to you its unique premise and objectives, and share the benefits that the project will have for our state. I am here today to encourage the Chairman and the Committee to refrain from adopting any measure to the Michigan Telecommunications Act that could negatively impact the progress and success of REACH-3MC.

Introduction

REACH-3MC is led by Merit Network, Michigan's research and education network. Along with eight commercial sub-recipients, the project will serve all sectors of society: homes, businesses and community anchor institutions (which are education, health care, libraries, government, social service and public safety organizations). In rural areas, local providers have reported that up to 80% of their costs go to backhaul. REACH-3MC solves the backhaul problem in rural Michigan by constructing 2,287 miles of "middle mile" fiber-optic infrastructure governed by "open access" network principles, raising the platform for all to compete from in providing service to our state.

To adequately serve end-users, the telecommunications industry in Michigan requires interconnectivity between network facilities owned by different providers with varying business models and interests: as a "middle mile" and "open access" network build-out, REACH-3MC is built upon this basic premise.

Therefore, the Michigan Public Service Commission must be a capable and trusted authority to quickly and effectively resolve disputes between various Internet service providers, exchange carriers and telecommunications providers.

Furthermore, existing "last mile" infrastructure, including copper lines, must be available to competing providers so that they can deliver service necessary for economic development in the 21st century. Merit acknowledges the need for providers to adapt to new wireless technologies and trending demand; however, the transition of ILECs from terrestrial "last mile" facilities must be a managed transition that allows other providers to effectively service end-users.

About Merit

Merit Network was founded in 1966 by Michigan State University, the University of Michigan, and Wayne State University as a vehicle to fulfill their need to share research and data effectively. Merit established networking in Michigan long before the term "Internet" was invented. And over the next three decades, Merit went on to pioneer many of the practices and protocols used in today's Internet.

1987, a Merit-led consortium (including IBM, MCI, and the Michigan Strategic Fund) won a \$39 million grant from the National Science Foundation to re-engineer and manage the NSFNET, the first national high-speed Internet backbone. Its purpose was to service research and education, but its success led directly to the Internet you and I know today. The NSFNET is regarded as *the* major precursor to the modern Internet.

Today Merit Network, Inc. is an independent, 501(c)3, non-profit organization that receives no subsidy or funding of any kind from the State of Michigan. Merit is governed by the public universities of Michigan. Over time, Merit's mission has evolved to include the service of community anchor institutions of all kinds, including public and private universities, K12 schools, health care facilities, libraries, community colleges, state and local government, social service and public safety organizations. Merit provides our Members with leading-edge network resources and network-related services, owning and operating the longest-running research and education network in America. Merit is seen nationally as one of the leading research and education networks and is a model many states are trying to copy.

As a valued resource to our Member organizations, Merit Network has helped our Members achieve success by working with them to facilitate collaboration between organizations. The Merit backbone, a network of community anchor institutions connected to one another is optimal infrastructure not only for telecommunication and access to information, but also for the sharing of resources and consolidation of services for Michigan's public institutions. It allows our Members to cut costs and provide more service to their patrons and constituents. But due to the lack of backhaul in rural and remote Michigan, not all community anchors have the ability to connect to the Merit network at the speeds needed to take advantage of these benefits.

Merit Network is guided by a vision of equal access to information for all of Michigan's citizens—regardless of physical location or geography. For almost a decade, Merit has had a plan to build fiber to serve community anchor institutions in rural and remote regions of Michigan where an absence of viable backhaul has left entire communities underserved, but we have lacked the funds to do so.

Through two grants from the Department of Commerce, and with the support of Michigan public universities, Merit's vision will soon come to fruition—to the benefit of all sectors of society, and the entire state.

REACH-3MC: Solving the Backhaul Problem

In 2010, Merit with the support of Michigan's public universities received two grants from the Broadband Technology Opportunities Program (BTOP) administered by the National Telecommunications and Information Administration (NTIA) and the Department of Commerce, and funded through the American Recovery and Reinvestment Act of 2009 (ARRA). Together the BTOP grants, with support from the public universities of Michigan, fund REACH-3MC (Rural, Education, Anchor, Community, Health care – Michigan Middle Mile Collaborative), a project that will create much-needed fiber-optic infrastructure in rural and underserved areas of Michigan, with key interconnection points in Wisconsin and Minnesota.

In rural and remote areas of Michigan, a lack of backhaul infrastructure, or a lack of cost-effective backhaul due to shortfalls in capacity and competitive service offerings, limits Internet service performance, availability and affordability for end-users. Internet Service Providers (or ISPs) in rural Michigan are hindered because the majority of their costs go to obtaining backhaul. Circuit connections and transport to major Tier 1 access points are either cost prohibitive or unavailable due to limited capacity.

Because of the lack of backhaul, community anchor institutions (CAIs for short) in rural and remote Michigan are forced to operate with levels of Internet, telecommunication and networking service that are below their need. These CAIs provide the same vital services that the public relies upon with only a fraction of the resources their counterparts in populous regions of Michigan and the US have access to. The problem is the same for businesses in rural and remote Michigan that must compete in the emerging global economy without an effective method to access it. End-users at home face similar predicaments with regard to access to information.

REACH-3MC is focused on the needs of Michigan and Michigan's efforts to transform its economy to a 21st century powerhouse. Our state's entire citizenry needs access to affordable, high-speed broadband at home, in the workplace, at its educational and community anchor institutions.

Two key components necessary for economic development are an educated work-force of life-long learners and unfettered access to the global information grid. Our project targets both, creating the knowledge infrastructure upon which Michigan will compete and grow in the 21st century.

A Foundational for Michigan's Future

REACH-3MC will create 2,287 miles of fiber-optic infrastructure through 52 counties in Michigan. The fiber will be lit with the most advanced technologies and is designed to benefit all sectors of society: homes, businesses and community anchor institutions.

REACH-3MC network segments will have between 12 and 168 strands of fiber. The basic access speeds will range from 10 Gbps (gigabits per second) to 1 Gbps. The infrastructure allows for capacity to be easily increased with a simple upgrade in optronics to accommodate future growth and industry innovation without additional investment in fiber-optic infrastructure for decades into the future.

Public-Private Sector Collaboration

REACH-3MC is based on a comprehensive community approach that leverages public-private sector collaboration. Because our mission limits Merit from providing service to homes and businesses, Merit engages eight different commercial providers through REACH-3MC who, with Merit, will each own fiber strands over various portions of the REACH-3MC network. This is what is commonly referred to as a "condo build" in the telecommunications industry. As the primary grant recipient, Merit owns the fiber sheath, while the ownership and operation of the fiber strands within the sheath are divided between Merit and the commercial providers, who are sub-recipients of the grants.

Merit's portion of the fiber will allow state and local governments, universities, schools, libraries, health care facilities, community colleges, public safety entities and other community anchor institutions to connect to Merit's private, high-performance network, enabling them to lower costs, consolidate services and provide more service to Michigan's citizens.

Benefits to Community Anchor Institutions

Through REACH-3MC, Merit will provide 105 community anchor institutions with a dedicated 1 Gbps fiber connection as part of the grant. REACH-3MC will make it feasible for other CAIs to also connect at speeds of 1 Gbps or greater for far less than it would cost today. The FCC National Broadband Plan sets a goal to connect every CAI in America at 1 Gbps by 2020. REACH-3MC will place these anchor institutions in the service area almost a decade ahead of this target and allow them to collaborate with the over 230 other CAIs that are currently connected to the Merit network. Additionally, REACH-3MC will enable the same benefits of a high-capacity connection for over 900 more community anchor institutions in the service area that will have the opportunity to connect to the network over time.

Indirectly, community anchor institutions in every region of Michigan will benefit from REACH-3MC because it will complete a statewide network for CAIs. Merit currently connects 35 % of private universities, 93 % of public universities, 66 % of community colleges, 63 % of K-12 ISDs, 50 % of library cooperatives and 37 % of public libraries in Michigan—the vast majority of those not connected due to a lack of affordable backhaul in their area.

As an example, Advanced Placement (AP) classes, which provide students with a significant academic advantage in college preparation, are only available on a limited basis in remote areas of Michigan—if at

all. Foreign language classes tell a similar story: students in remote areas have fewer opportunities than those in metropolitan areas. The technology exists to use the statewide network to provide students anywhere in the state with the advantage of AP and foreign language courses, ensuring that every Michigan school is equipped to produce a skilled workforce that will drive the 21st century economy.

REACH-3MC received over 250 letters of support from community anchor institutions in Michigan, including letters from over 30 CAI Leadership Organizations (example: Michigan Association for Intermediate School Administrators). REACH-3MC has the backing of 12 major Universities in Michigan that are committed to fully supporting the project in its entirety.

Public Safety: Transition to Next Generation 911

In 2006, due to the need to update first-response public safety, the State of Michigan commissioned a study on transitioning to Next Generation (NG) 911 service. The resulting plan has a dedicated, high-availability network as its foundation. The cost of such a network had placed the implementation of this plan in doubt. With REACH-3MC in place, making an incremental move to the NG 911 system is not only possible, but likely in the future.

A portion of REACH-3MC was designed with input from the State of Michigan 911 Administrator. The fiber, leveraging REACH-3MC and Merit's existing network, will provide a footprint to connect all Public Safety Answering Points (PSAPs) to a robust, IP-based infrastructure that will create cost-savings and enable the consolidation of resources. The redundancy, security, interoperability, and flexibility of this network will be paramount to maintaining a reliable 911 system in Michigan, and provide options and functions to meet the changing demands of public safety.

Supporting Incumbent ISPs with "Middle Mile" Infrastructure

As a "middle mile" project, the aim of REACH-3MC is not to directly connect every home and business in the network service area, but rather, REACH-3MC will build backhaul into a region. Local ISPs and telecommunications providers will then have the opportunity to leverage this infrastructure to provide faster, cheaper, and more reliable service.

REACH-3MC will support, not harm incumbent ISPs and telecommunications providers in the service area. The regulations of the grant ensure that REACH-3MC will be an "open access" network, meaning that any ISP or telecommunications provider with an interest in connecting to the network will not be unreasonably withheld from doing so where capacity permits. Connection agreements will be negotiated in good faith and access will be at market rates. Leveraging the "middle mile" infrastructure, local ISPs and telecommunications providers will have the option to obtain affordable backhaul service from a number of REACH-3MC participants and improve their own service offerings.

Though we anticipate that the majority of local ISPs or other providers seeking access to REACH-3MC infrastructure will work with REACH-3MC Sub-recipients to obtain backhaul service, Merit will act as provider of last resort. During the engineering phase of the project, Merit will work with any ISP

interested in accessing REACH-3MC infrastructure to leave a splice enclosure at a desired location for interconnection.

Competition will be the true guarantor of the success of REACH-3MC. The number (eight) and diversity (ILECs, CLECs, Cable providers) of sub-recipients participating in REACH-3MC ensure the network will be a sustained investment that delivers results. On each network segment, there are multiple service providers (Merit and sub-recipients) competing to provide a given community the best value—whether it be wholesale transport to a local ISP, a fiber connection to a school or library, or residential and commercial service. Each sub-recipient brings a different value proposition to the service area, employing different technologies, content and service packaging. Competition will enforce market rates, ensuring that consumers in remote areas will not pay more for the same service than those in metropolitan areas.

It is important to view REACH-3MC not as an exercise on the Federal Government's part that favors one entity over another, but rather, because of the "open access" provisions and the investment in community anchor institutions, it is important to view REACH-3MC as an investment in a foundation that will benefit the entire state of Michigan.

Improved Service for Homes and Businesses

The REACH-3MC service area encompasses over 1 million homes and 55,000 businesses that stand to benefit from the infrastructure either as direct customers of a REACH-3MC sub-recipient, or indirectly through an existing service provider that obtains backhaul from a REACH-3MC sub-recipient.

REACH-3MC will enable sub-recipients access to 51 Central Office facilities throughout the state, which they will use to provide "middle mile" or backhaul service out of a region, and also to leverage the existing infrastructure of local ILECs to provide better service to the community. An additional 12 colocation facilities will be constructed as part of REACH-3MC that will enable the same for providers in the Upper Peninsula.

Utilizing the existing infrastructure of ILECs to provide service to homes and businesses is referred to as "last mile" service. And whereas REACH-3MC seeks to solve Michigan's backhaul problem in rural and underserved communities by constructing "middle mile" infrastructure, existing "last mile" facilities become all the more important. Without properly maintained, accessible "last mile" infrastructure, REACH-3MC's objective of improving service to underserved homes and businesses will go unfulfilled.

Importance of Copper Line

In the context of the Committee's current review of the Michigan Telecommunications Act, I must emphasize the importance of existing "last mile" facilities. In order for Michigan residents to take advantage of the benefits of the REACH-3MC project, there needs to be an effective method for ISPs to connect them with the next-generation facilities that REACH-3MC will create. Whether it be a copper

connection from a Central Office via ILEC infrastructure or a 4G wireless connection from a near-by cellular tower, special attention needs to be devoted to ensuring that providers have the means necessary to effectively serve consumers.

I urge the Committee to consider this special importance of "last mile" facilities when redrafting Michigan Telecommunications Act legislation. Should any changes be made to the language of the bill that address existing "last mile" infrastructure and its ownership or maintenance, please ensure that ISPs will still have the ability to effectively service end-users. Where possible, competing last-mile technologies will provide the most benefit to Michigan's citizens.

Merit acknowledges the need for providers to adapt to changes in consumer demand and the competitive landscape; however, any change in ownership of ILEC "last mile" facilities must be a prudent one that allows any provider to effectively service end-users.

Importance of the Michigan Public Service Commission

Because of the all-important hand-off between "last mile" and "middle mile" providers that is both the basis for the telecommunications industry in Michigan, and also paramount to the success of REACH-3MC, I encourage the Committee to exercise careful judgment when considering the importance of the Michigan Public Service Commission (or MPSC).

REACH-3MC is a tremendous undertaking to address Michigan's broadband shortfalls, and the result of a great deal of hard work from a number of different organizations that share the goal of better service throughout our state. It is important to ensure that the changes made to the Michigan Telecommunications Act do not reduce competition in a way that could limit the benefits of the unique opportunity that REACH-3MC presents.

In order for REACH-3MC to have maximum benefit for the state of Michigan, it is important to have an authority like the MPSC to enforce fair competition and to settle disputes between providers. Without fair competition, the goal of improving service to end-users is jeopardized.

It is also important that the MPSC remain a local authority with a vested interest in the state where it helps to settle disputes. Often times, the MPSC can resolve a conflict without resorting to an arbitration hearing because of its on-going working relationship with ISPs, telecommunications providers, municipalities and utilities in Michigan.

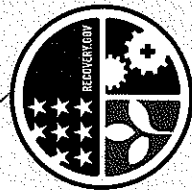
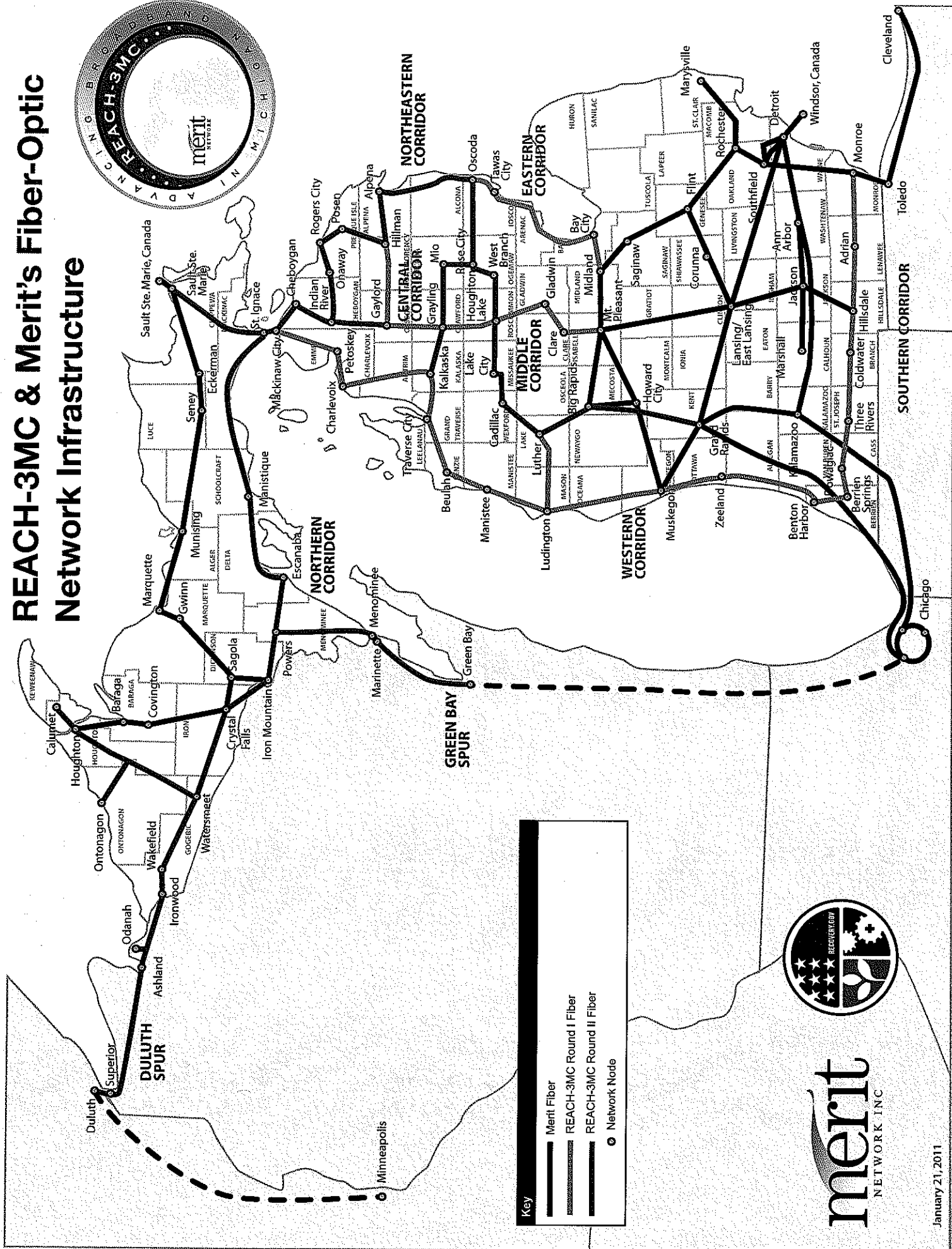
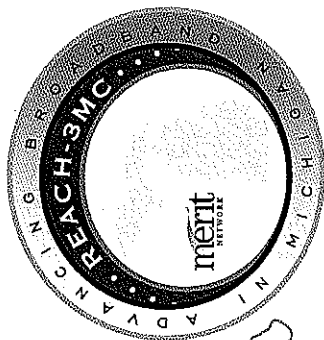
Additionally, the notion of an authority outside of Michigan presents with it concerns of timely resolutions of disputes. Many of the standard procedures in the telecommunications industry, such as permitting, are already a lengthy process. There is the fear that if conflicts are arbitrated outside Michigan that a resolution could take even more time to be reached. It is important that the body regulating the telecommunications industry in Michigan be effective, efficient and timely.

As we continue to implement the two BTOP grants that fund REACH-3MC, Merit has enlisted the help of the MPSC to help streamline the METRO Act permitting process. As the grants stipulate strict time constraints, the locality of the Michigan Public Service Commission has proven to be an asset to our project, and will ultimately help us accomplish more for Michigan.

Closing

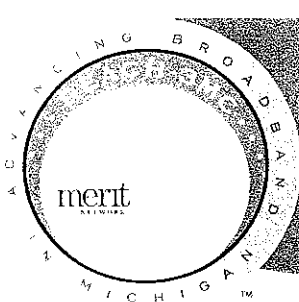
In closing, I would like to again thank Chairman, Nofs, Vice Chair Proos, and members of the Committee for allowing me to speak today on behalf of Merit Network and the REACH-3MC project. I hope that you all have found my testimony informative, and that I have communicated effectively the ways in which the Committee can act in their review of the Michigan Telecommunications Act to bring about maximum benefit for Michigan's citizens from REACH-3MC.

REACH-3MC & Merit's Fiber-Optic Network Infrastructure



merit
NETWORK INC.

January 21, 2011



Merit's ARRA Projects

REACH-3MC Fiber-Optic Network Update



February 2011

Merit Network is Building 2,287 Mile-Long Fiber-Optic Network Extension in Michigan

In 2010, Merit Network, Inc. was awarded federal stimulus funding for two broadband projects in Michigan. The Rural, Education, Anchor, Community and Health care – Michigan Middle Mile Collaborative (REACH-3MC) is a collaboration that will build much-needed infrastructure in many parts of the state.

In January 2010, Merit's REACH-3MC project was awarded a \$33.3 million federal grant from funds allocated through the American Recovery and Reinvestment Act (ARRA) of 2009 to create a 1,017-mile open-access network in Michigan's Lower Peninsula. Seven months later, Merit was awarded \$69.6 million in funding to build 1,270 miles of fiber-optic infrastructure in the Northern Lower and Upper Peninsulas of Michigan. Both projects are funded through a program of the National Telecommunications and Information Administration (NTIA).

Better Broadband in Michigan

"Years ago Merit embarked on a strategy to own our own fiber-optic infrastructure. This was the best way to provide the performance and the price our Membership needs now and in the future," said Merit President and CEO, Don Welch. "We knew it would take a long time, but also knew we had to get infrastructure in these areas somehow. The stimulus funding accelerates that plan to the benefit of the entire State."

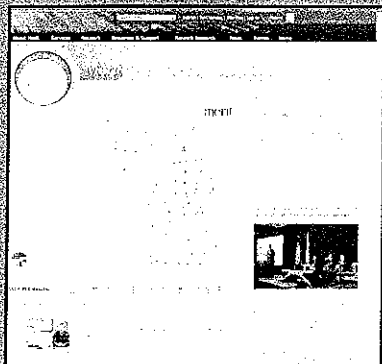
- The fiber, considered "middle-mile" infrastructure, enables access to high-performance broadband, will benefit rural and underserved communities across 52 Michigan counties.
- Merit has collaborated with commercial providers on both projects, and the shared infrastructure will serve all sectors of society: Community Anchor Institutions, Homes and Business—providing the broadest impact and benefit for Michigan.
- Local Internet Service Providers (ISPs) can connect to the REACH-3MC network to bring "last-mile" broadband service to homes and businesses.
- Merit's portion of the fiber will allow state and local governments, universities, schools, libraries, healthcare facilities and other anchor institutions to connect to Merit's private, high-performance network, enabling them to lower costs, consolidate services and provide more to Michigan's citizens.
- The paths of the REACH-3MC II network will terminate at the University of Minnesota Duluth and University of Wisconsin - Green Bay thus connecting Merit's network with that of neighboring BOREAS-Net, Northern Tier Network and WiscNet networks. Leveraging these connections, REACH-3MC II will provide direct fiber-optic connections between community anchor institution networks from Alaska to Ohio.

REACH-3MC Web Site

You can follow the progress of the REACH-3MC project online. Community updates, meeting dates, project-related documents, Requests for Proposals (RFPs), and more are available through the web site.

The web site includes a contact form that organizations and individuals can use to inquire about network connectivity and request additional information.

<http://www.merit.edu/meritformichigan/>





- 

[illegible]

Connecting Organizations. Building Community.



Experienced Provider for Michigan

For over 40 years Merit Network has remained Michigan's trusted source for leading-edge networking solutions. Since its inception in 1966, our organization has undergone significant changes to adapt to the unique needs of the growing Merit community. From our beginnings as a computer network for Michigan's leading public universities, to our leadership role in the National Science Foundation Network (NSFNET)—the pre-cursor to today's commercial Internet—Merit has always sought to leverage the accomplishments which precede us.

Merit has partnered with over 20 networks to provide peering relationships between Merit and their network—a direct path to and from their networks for exchanging data. Merit is Michigan's only connector to the Internet2 Network, the national high-performance network that connects research universities, K-12 organizations, healthcare organizations, government institutions, and others in the United States.

Merit developed and maintains a leading-edge Network Operations Center (NOC) and a Service Operations Center, with personnel located in Ann Arbor, Michigan who manage both Merit Network and out-of-state network and service operations.

Benefits of Fiber-Optic Connectivity

The data capacity of the fiber is limited only by the speed of light, which is to say that the capacity is (theoretically) unlimited. Today, the most cost-effective fiber-optic electronics provide for transmission rates of 1 gigabit-per-second (Gbps) with speeds up to 10 Gbps, but as more powerful electronics become available, the speed of a fiber-optic connection can be upgraded without replacing the fiber-optic cable.

"With this system in place, it will be possible to upgrade to 40 Gbps and 100 Gbps with no optical layer changes," according to Merit's Director of Network Engineering and Operations, Pete Miller.

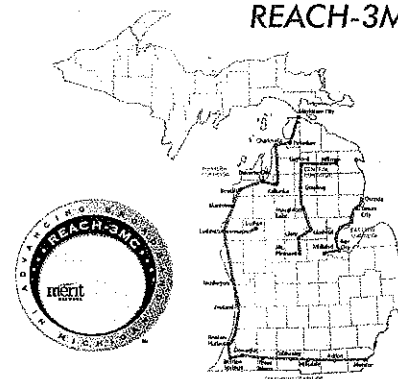
Fiber-optic connections enable organizations to use low-latency network applications, such as Voice over IP (VoIP), IPTV, and interactive videoconferencing.

Merit can provide fiber-optic connections to organizations that will be cost-effective and highly reliable. If your organization is interested in fiber-optic connectivity, please send an email to info@merit.edu for more information.



Network Mileage

REACH-3MC I



Eastern Corridor:

Oscoda to Bay City to Midland
(104 fiber miles)

Central Corridor

Gaylord via Hillman to Mt. Pleasant
(221 fiber miles)

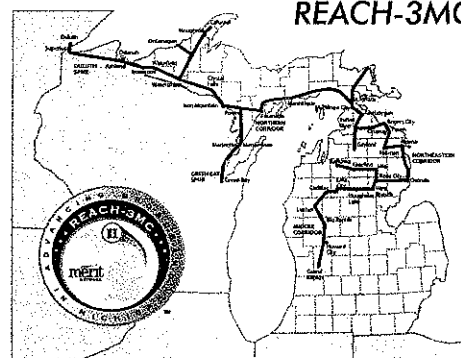
Western Corridor:

Mackinaw City to Berrien Springs
(356 fiber miles)

Southern Corridor:

Berrien Springs to Monroe via Hillsdale
(175 fiber miles)

REACH-3MC II



Middle Corridor:

Grand Rapids to Kalkaska and Oscoda
(322 fiber miles)

Northeastern Corridor:

Oscoda to Mackinaw City via Alpena
(220 fiber miles)

Northern Corridor:

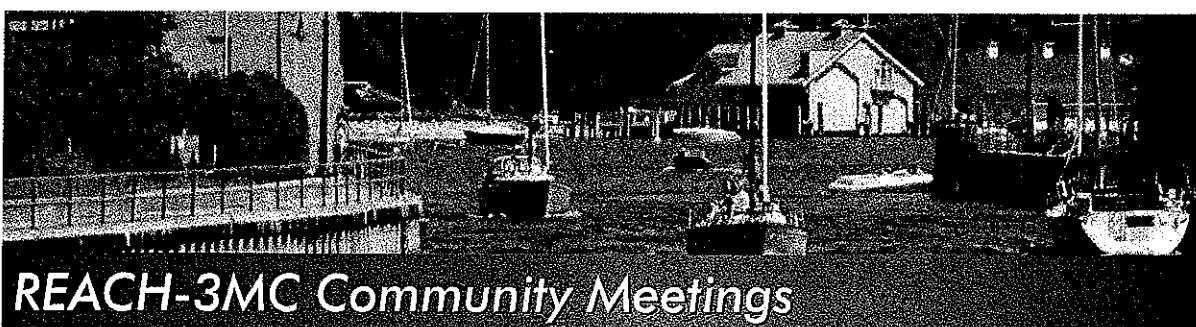
St. Ignace to Ironwood & Houghton
(425 fiber miles)

Duluth Spur:

Ironwood to Duluth
(115 fiber miles)

Green Bay Spur:

Powers to Menominee & Green Bay
(96 fiber miles)



REACH-3MC Community Meetings

Since receiving the project award, Merit's management and staff have travelled to cities located near the proposed routes for the network and met with local government officials, organizations and individuals. These community meetings have helped to update and educate the community on the progress of network permitting, construction and related activities.

The network is being built in many areas of Michigan where broadband connectivity does not exist. The community meetings have helped provide attendees with information about the benefits and opportunities that can result from the new network infrastructure. Anchor institutions, organizations, and Internet service providers located near the new network routes have been invited to take advantage of the new infrastructure and connect to the network.

Merit's community-based approach to high-performance networking has helped several cities in Michigan, and the REACH-3MC project will provide even greater opportunities for community involvement in cities across Michigan. To view the dates and times of upcoming meetings and to register, please visit:

www.merit.edu/meritformichigan/meetings/

How to Participate and Receive Updates

Merit is very interested in working with you and others to provide broadband access throughout Michigan. If your organization is interested in fiber-optic connectivity, visit the REACH-3MC web site and complete the Institution Interest Form. If you are a business or home user, please complete the Broadband Subscriber Interest Form.

REACH-3MC Web Site

The REACH-3MC web site provides REACH-3MC project updates, community updates, project-related documents, and additional information. Please visit:

www.merit.edu/meritformichigan/

E-Mail Mailing Lists

Merit has created email lists to keep communities up-to-date regarding progress on the REACH-3MC network projects and to provide details on upcoming community meetings. To sign up for a Community Update Email list, please visit:

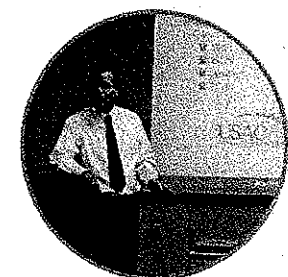
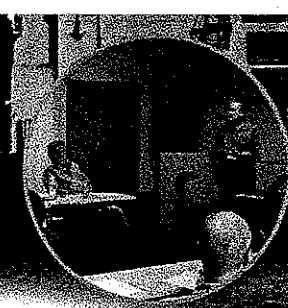
www.merit.edu/meritformichigan/email_list/

REACH-3MC RSS Feed

A dynamic RSS feed has been created to notify web site visitors when the REACH-3MC site has been updated. For the RSS Feed location, please see:

www.merit.edu/news/rss/

For more information, please email to info@merit.edu



merit
NETWORK



Merit Overview

Michigan's Education and Research Network

High-speed networking is a strategic advantage for organizations in Michigan, and especially for research and education.

Digital networks today are like the railroad and interstate highways — essential ingredients in economic development and job creation in a state or region.

With over four decades of networking experience, Merit Network is Michigan's most experienced network provider.

Merit Network was founded in 1966 by Michigan State University, University of Michigan and Wayne State University in order to facilitate computer networking for research and education.

Merit is a nonprofit organization, governed by Michigan's public universities, that provides high-performance networking to the higher education, K-12, library, health care, government, research and other nonprofit and service organizations.

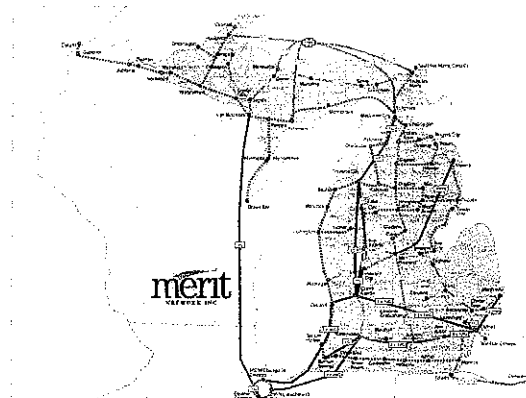
Merit operates Michigan's most robust and comprehensive IP network. The Merit backbone is the core of networking capability and connectivity in the state of Michigan.

Merit's mission is to be a respected leader in developing and providing advanced networking services to the research and education community. Pursuit of this goal benefits a wide audience in the education and research communities and has broad implications for economic development in Michigan.

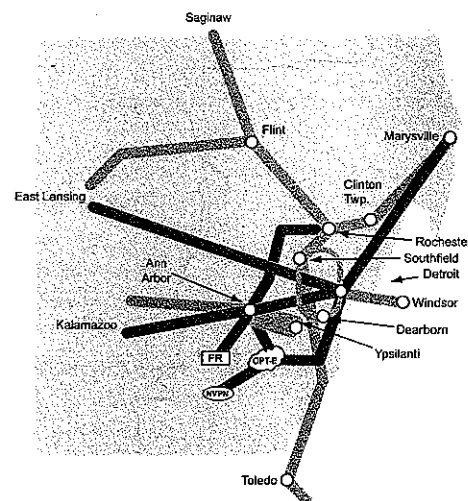
Merit is a trusted source for providing high-quality network infrastructure; initiating and facilitating collaboration; and providing knowledge and technology transfer through outreach.

Merit is also a Research & Education Network Member of Internet2 and serves as the Internet2 connector for Michigan. In this role, Merit provides access in Michigan to Internet2's national high-speed research and education backbone network. Merit offers sponsored Internet2 access to Michigan's governmental agencies, K-12 schools, libraries and higher education institutions, giving students access to innovative learning programs.

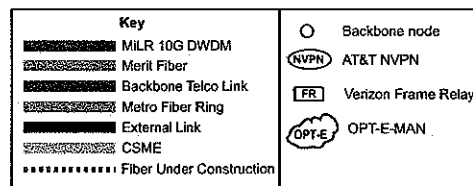
Merit continues the ambitious effort to create a statewide fiber optic backbone infrastructure in Michigan. Merit has fiber connectivity directly to major connection and peering points in Chicago and direct connections in Toledo and Windsor, Ontario. In 2008, routers on the core backbone network were upgraded to 10G. In 2010, Merit received \$33.3 million federal grant to add a 955-mile extension to its existing 1,600-mile fiber-optic backbone network.

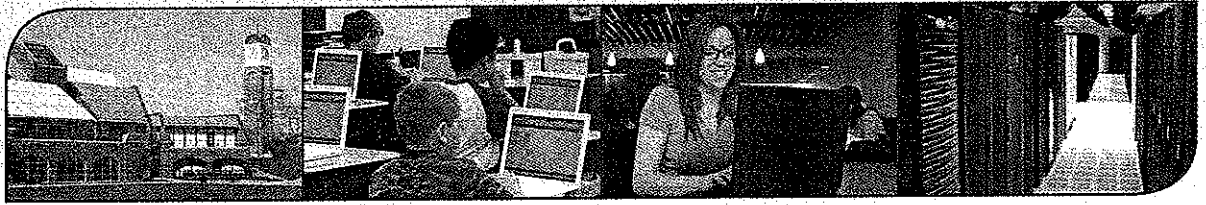


Advanced Statewide Network



Connecting Southeast Michigan





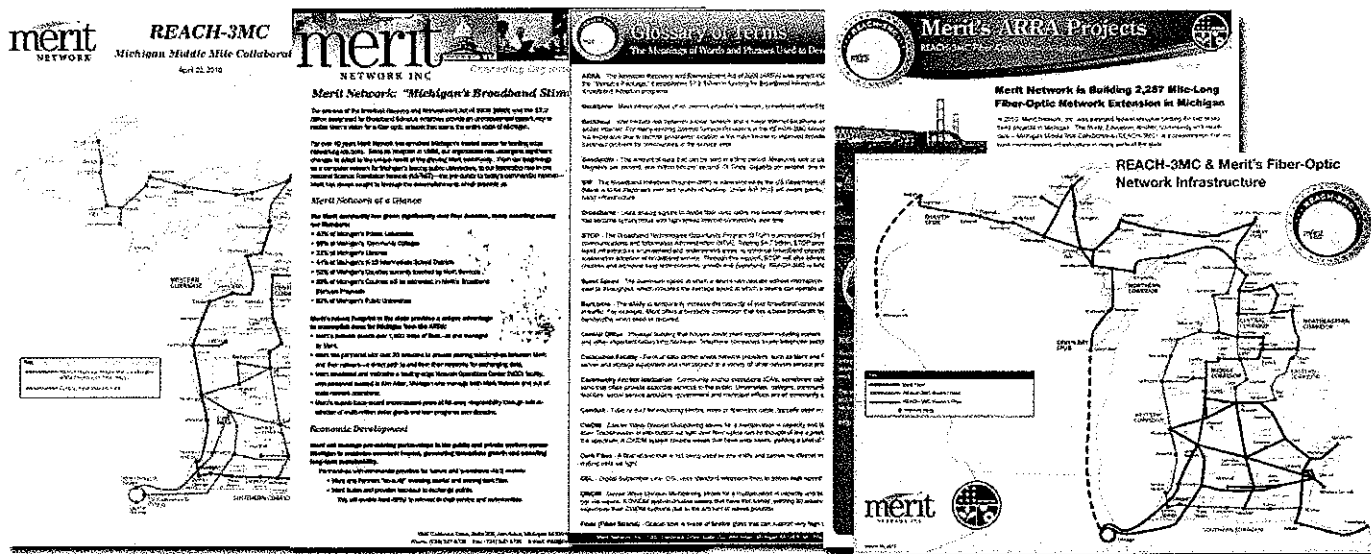
Merit Timeline

- 1966 Merit is incorporated with University of Michigan, Michigan State University, and Wayne State University as founding Members.
- 1969 Initial funding of \$400,000 from Michigan State Legislature is matched by a \$400,000 grant from the National Science Foundation.
- 1971 Merit successfully networks the mainframe computers at U-M, MSU, and Wayne State.
- 1987 Merit partners with IBM, MCI and the Michigan Strategic Fund, wins \$39 million award to manage the NSFNET, the catalyst for the commercial Internet.
- 1990 Merit offers Internet service to K-12 schools, community colleges, and research organizations in Michigan. Merit, IBM and MCI create Advanced Networking & Services, a nonprofit spin-off.
- 1995 Merit has 200 research and education Affiliates and offers dial-in Internet service to over 90% of Michigan.
- 1998 U.S. higher education creates Internet2. Doug Van Houweling, Merit's chairman, is named president. With the addition of Ferris State University, all of Michigan's public universities now sit on Merit's governing board.
- 1999 Merit provides first Internet2 connections in Michigan.
- 2000 Merit creates for-profit spin-offs Interlink Networks and NextHop Technologies with Nokia, Siemens, and New Enterprise Associates as lead investors.
- 2001 Merit connects all of Michigan's public universities to Internet2. Merit provides dial-in Internet access to K-12 teachers in Michigan through the Teacher Technology Initiative.
- 2002 Michigan State University, University of Michigan and Wayne State University are attached to Merit via Gigabit ethernet.
- 2003 Merit initiates development of owned fiber optic backbone for research and education in Michigan.
- 2004 Merit implements regional fiber rings and aids in planning Michigan Lambda Rail (MiLR). Merit and ORION sign historic agreement to interconnect across the U.S./Canada border.
- 2005 Merit Network moves into the new Michigan Information Technology Center (MITC) along with Internet2. Merit completes fiber backbone infrastructure in southern Michigan.
- 2006 Merit and the Ontario Research and Innovation Optical Network (ORION) officially interconnect their high-speed optical research and education networks. Merit and Ohio Supercomputer Center (OSC) announce partnership between the two state networks, which includes acquiring fiber from Toledo, OH to Chicago, IL, as well as an agreement to pursue fiber acquisition to the east of Ohio.
- 2007 Merit unites Michigan's peninsulas with a fiber connection across the Mackinac Bridge and begins offering gigabit connections to its Members in the Northern Lower Peninsula and the Upper Peninsula.
- 2008 Merit upgrades routers on its core backbone network to 10G. Merit receives DARPA Control Plane contract for intelligent network routing project.
- 2010 Merit receives \$33.3 million federal grant to help fund its REACH-3MC project, a 955-mile fiber-optic network extension in the Lower Peninsula.

ARRA Project Communications (Continued)

REACH-3MC Maps and Information

To provide Merit's Members and others in Michigan with details about the REACH-3MC network infrastructure project, Merit creates informational documents and maps as needed to help with education and outreach.



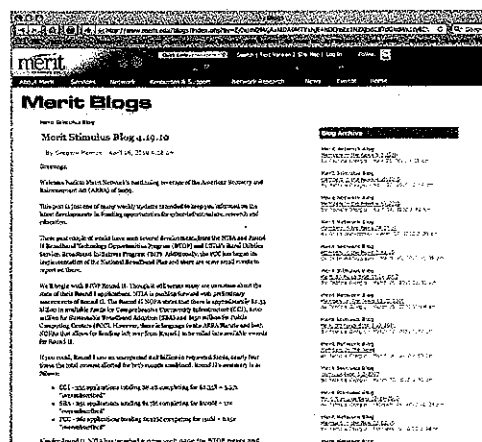
Merit Stimulus Blog

Soon after the passage of American Recovery and Reinvestment Act (ARRA) of 2009, Merit Network started the Merit Stimulus Blog to inform its Members and others about available stimulus funding opportunities in Michigan and nationally. Blog entries about relevant stimulus-related topics and initiatives are posted once or twice a week.

The Merit Stimulus Blog is a very popular feature, routinely placing in the top ten most visited places on Merit Network's web site.

REACH-3MC RSS Feed

Merit created a dynamic RSS feed that web site visitors can use to keep track of updates to the REACH-3MC web site. When the web site is updated, the RSS feed is simultaneously updated to notify subscribers of a change, so that they can then return to the web site and access the new information.

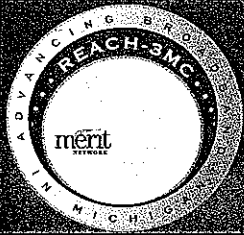


About Merit Network

Merit Network, Inc., a nonprofit corporation owned and governed by Michigan's public universities, owns and operates America's longest-running regional research and education network. In 1966, Michigan's public universities created Merit as a shared resource to help meet their common need for networking assistance. Since its formation, Merit Network has remained on the forefront of research and education networking expertise and services. Merit provides high-performance networking solutions to Michigan's public universities, colleges, K-12 organizations, libraries, state government, healthcare, and other non-profit organizations.

For more information: www.merit.edu





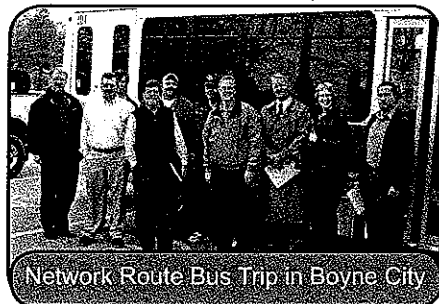
ARRA Project Communications

How Merit Network is communicating with its Members and others about the REACH-3MC broadband infrastructure project

Meeting with Nearby Communities

In January 2010, Merit Network, Inc. and its REACH-3MC project sub-recipients were awarded a \$33.3 million federal grant from funds allocated through the American Recovery and Reinvestment Act (ARRA) of 2009. The broadband infrastructure project will create a 955-mile fiber-optic network in Michigan's Lower Peninsula.

Since receiving the project award, Merit's management and staff have travelled to cities located near the proposed routes for the network and met with local government officials, organizations and individuals. These community meetings have helped to update and educate attendees on the progress of network permitting, construction and related activities.



Network Route Bus Trip in Boyne City

The new network is being built in many areas of Michigan where broadband connectivity does not exist. The community meetings have helped provide attendees with information about the benefits and opportunities that can result from the new network infrastructure. Anchor institutions, organizations, and Internet providers located near the new network routes have been invited to take advantage of the new infrastructure and connect to the network. Interested individuals and organizations can register online to attend a community meeting for their area.

Merit's community-based approach to high-performance networking has helped several cities in Michigan, and the REACH-3MC project will provide even greater opportunities for community involvement in cities across Michigan.

Update:

On August 18, 2010, Merit and its REACH-3MC II project sub-recipients were awarded funding from the NTIA to build 1,270 miles of fiber-optic infrastructure in the Northern Lower and Upper Peninsulas of Michigan. Merit is again using a community approach to reach out to organizations in cities along the new network route.

Email Mailing Lists

During the ARRA broadband application process, Merit Network received letters of support from many organizations in Michigan who were interested in improving broadband in their communities. To keep in touch with these supporting organizations and others following the ARRA award announcement, Merit Network has used a stimulus information email mailing list to communicate project details, timelines and more.

Merit has also provided regular updates about ARRA stimulus funding, both for broadband and non-broadband projects, to interested parties through its stimulus information mailing list.

Update email lists for REACH-3MC communities have also been created.



REACH-3MC Web Site

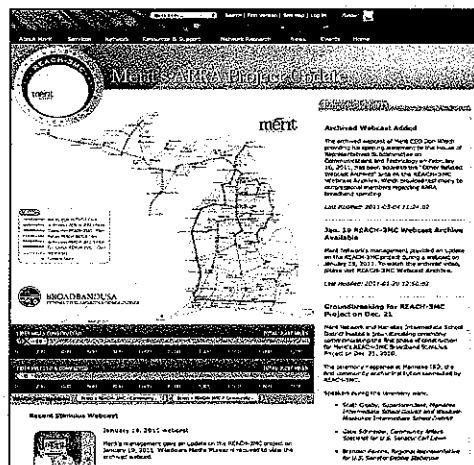
Shortly after being notified by the NTIA about the ARRA federal grant, Merit Network launched its REACH-3MC ARRA Project Update web site at:

<http://www.merit.edu/meritformichigan/>

The web site provides general REACH-3MC project updates, community updates, and project-related documents. Archives of news stories related to the project are also available through the web site.

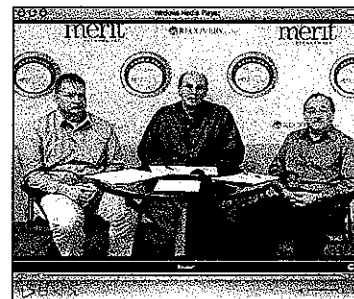
When Requests for Proposals (RFPs) are released for work related to the project, RFP registration forms and information are made available to prospective vendors through the web site.

The web site includes a contact form that organizations and individuals can use to inquire about network connectivity and request additional information.



Project Update Webcasts

Merit's management is providing regular updates about the REACH-3MC project and answering questions via webcasts. Archived webcasts are available through the REACH-3MC web site.



Michigan Senate District Map

REACH-3MC & Merit's Fiber-Optic Network Infrastructure

